



## Original Communication

# Physical assault related injuries in Western Nepal – A hospital based retrospective study

S.H. Subba MD DNB (Associate Professor)<sup>a,\*</sup>, V.S. Binu MSc (Senior Lecturer)<sup>b</sup>,  
Ritesh G. Menezes MD DNB (Associate Professor)<sup>c</sup>, Virendra Kumar MD (Professor and Head)<sup>d</sup>,  
M.S. Rana MPH (Lecturer)<sup>e</sup>

<sup>a</sup> Department of Community Medicine, Kasturba Medical College, Mangalore, India (Affiliated to Manipal University, India)

<sup>b</sup> Department of Statistics, Manipal University, Manipal, India

<sup>c</sup> Department of Forensic Medicine and Toxicology, Kasturba Medical College, Mangalore, India (Affiliated to Manipal University, India)

<sup>d</sup> Department of Forensic Medicine and Toxicology, Meenakshi Medical College and Research Institute, Kancheepuram, Tamil Nadu, India

<sup>e</sup> Department of Community Medicine, Manipal College of Medical Sciences, Pokhara, Nepal

## ARTICLE INFO

### Article history:

Received 11 January 2009

Received in revised form 10 October 2009

Accepted 4 February 2010

Available online 10 March 2010

### Keywords:

Physical assault  
Injury  
Violence  
Nepal

## ABSTRACT

**Objective:** The study was carried out to study the pattern of injuries and epidemiological factors in Nepal where there is no systematic surveillance system for injuries.

**Design:** A hospital based, retrospective study conducted by extracting data from the medico-legal register of the Emergency Department of a Regional Hospital for 3 years.

**Setting:** Regional Hospital in Pokhara, Western Nepal.

**Results:** A total of 1100 cases of physical assault had been reported. Male to female ratio was 3.6:1 and most commonly involved age group in males was 16–25 and in females was 26–35 years. Contusion (28.7%) was the commonest type of injury followed by incised wounds (25.7%). Most commonly used weapon was wooden stick and clubs (21.5%) followed by kicks and punches (20.6%). The most frequently affected anatomical site involved was the head and neck (57.06%), followed by the upper limbs (17.74%) and the lower limbs (10.5%). Assaultants for females were most commonly spouse (40%) and in-laws (14%) and for males it was unspecified known individuals (18%) followed by neighbours (11%). Maximum number of physical assault injuries occurred between evening and midnight (59.59%).

**Conclusion:** Injuries from physical assault occurred in all age groups but most commonly affecting the young males and majority of them were in the productive age group. Commonest type of injury was contusion and weapon used wooden sticks and clubs. Assaultants were spouses in females and known but unspecified individuals in men.

© 2010 Elsevier Ltd and Faculty of Forensic and Legal Medicine. All rights reserved.

## 1. Introduction

Physical assault is one type of interpersonal violence that contributes towards disability, psychosocial problems, loss of life, and other health related morbidities. Violence is defined as, “the intentional use of physical force or power, threatened or actual, against oneself, another person or against a group or community, that either results in or has high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation.” It is classified into three categories namely; self-directed, interpersonal and collective violence.<sup>1</sup> Violence contributes significantly to the global burden of disease and death worldwide and is estimated to have caused around 1.6 million deaths in 2002, a third of which was due to interpersonal violence.<sup>2</sup> Prevention and control of phys-

ical assault that is part of interpersonal violence alone would cause significant reduction in violence related health events. Currently, in most of the developed nations, programmes are in place to control the burden of violence in the community.<sup>3</sup> World Health Organization (WHO) has provided guidelines to initiate violence prevention activities in all countries, the first step for which is the surveillance of violence related deaths and injuries. The WHO has also recommended Emergency Department data as one of the sources to measure the violence related morbidity and mortality.<sup>1</sup> Majority of the developing countries do not have such surveillance or reporting systems in place.<sup>3</sup> Nepal, one of the least developed nations in the South East Asia Region has no systematic surveillance and reporting system of violence related health events. There has been no study till date about the epidemiology and pattern of physical assault related injuries in Nepal. Information about the epidemiology and pattern of physical assault related injuries will contribute towards better understanding of the problem in the population

\* Corresponding author. Tel.: +91 9886456225.

E-mail address: [sonuhsbba@yahoo.com](mailto:sonuhsbba@yahoo.com) (S.H. Subba).

and helps the administrators for preventive and control actions. The present study was conducted to find the pattern of physical assault related injuries in the western region of Nepal.

## 2. Materials and methods

Nepal is divided into five developmental regions and each region has a regional health directorate and a regional hospital. The western developmental region of Nepal has 15 districts with a population of around 4.5 million and the regional hospital is situated in Pokhara city of Kaski district.<sup>4</sup> The present study was conducted in this regional hospital during the 3 year period from April 2002 to March 2005. Data was extracted from the medico-legal register maintained in the Emergency Department of this hospital. Only those cases registered as physical assault were included in the study. Self inflicted injuries and injuries due to armed conflict that represented collective violence were excluded.

Data were entered and analyzed using SPSS 11 (SPSS Inc., Chicago, IL, USA). Chi square and Mann Whitney *U* test were used for testing the statistical association between variables and *P* value less than 0.05 was considered as significant.

## 3. Results

The number of cases of physical assault reported in the Emergency Department of the Western Regional Hospital, Pokhara during the study period was 1100 out of which gender was not mentioned for 40 cases. For the remaining cases the gender ratio was observed to be 3.6 males per female cases. The numbers of cases in the 3 years were 375 cases in 2002–2003, 376 in 2003–2004 and 349 in 2004–2005. Of the 783 cases whose addresses were recorded 525 (67%) belonged to the Kaski district where the hospital is located and 258 (33%) belonged to other districts, mostly neighboring ones.

The median age of male cases was 28 years (IQR 19 years) and that for females was 33 years (IQR 17 years). The difference in median age between male and female cases was found to be statistically significant ( $P < 0.001$ ). Table 1 gives the distribution of cases according to age and gender. About 63% of cases were in 16–35 year age group and the maximum number of cases among males were in 16–25 year age group while that for females in 26–35 year age group.

Distribution of types of injuries is shown in Table 2. The most common type of injury sustained by the victims was contusions followed by incised wounds, lacerations and abrasions. Around 4% of the injuries were intracranial injury and a similar percentage were fractures. Fracture was most commonly seen in the head and neck area followed by the upper limb. The gender wise distribution of type of injuries was not statistically significant ( $P = 0.9$ ).

**Table 1**  
Age and gender distribution of the victims of physical assault.

Age group	Male		Female		Total	
	No.	%	No.	%	No.	%
≤15	24	3.0	4	1.8	28	2.7
16–25	302	37.7	59	26.2	361	35.2
26–35	217	27.1	68	30.2	285	27.8
36–45	114	14.2	54	24.0	168	16.4
46–55	85	10.6	19	8.4	104	10.1
56–65	40	5.0	13	5.8	53	5.2
≥66	19	2.4	8	3.6	27	2.6
Total <sup>a</sup>	801	100	225	100	1026	100

<sup>a</sup> Age and gender missing for some cases.

**Table 2**  
Types of injuries.

Type of injury	Male		Female		Total	
	No.	%	No.	%	No.	%
Abrasion	143	13.5	33	10.7	176	12.8
Contusion	294	27.7	99	31.9	393	28.7
Laceration	236	22.2	46	14.8	282	20.6
Incised wound	256	24.1	98	31.6	354	25.7
Stab wound	18	1.7	1	0.4	19	1.4
Gun shot wound	28	2.6	6	1.9	34	2.5
Fracture	42	4.0	13	4.2	55	4.0
Intracranial injuries	41	3.8	14	4.5	55	4.0
Others	4	0.4	0	0.0	4	0.3
Total <sup>a</sup>	1062	100	310	100	1372	100

<sup>a</sup> Number exceeds the number of cases due to multiple injuries.

Victims of physical assault who were brought dead to the Emergency Department were seven in number and three more died after reaching the Emergency Department. Five of them were either unconscious or had altered sensorium and unrecordable blood pressure.

Of the total entries where the weapon used was mentioned (Table 3) 21.53% of the weapons used were wooden sticks and clubs followed by fists and kicks and stones. Firearm was used in only 7.7% of the physical assaults. There was significant difference in the weapons used upon male and female victims where males were more likely to be attacked by sharp edged weapons whereas female victims were more likely to be attacked by fists and kicks ( $P < 0.001$ ).

Regarding the number of weapons used in physical assaults, 94.2% of the times, a single weapon was used and only few times multiple weapons like fists and kicks, stones or rods were used together.

Overall, the most common anatomical site involved was the head and neck (57.06%), followed by the upper limbs (17.74%) and the lower limbs (10.5%). Figs. 1 and 2 show the anatomical sites involved in males and females respectively. In both sexes the most common site involved was the head and neck followed by the upper limbs. Third common site in males was the lower limbs and in females it was the thoracic region.

Regarding the number of injuries sustained by the victims, 37.3% sustained injury at a single site, 30.8% at two sites and multiple injuries numbering three and above in a single person was 31.9%.

There were 153 instances where the assailant identity was noted and among them, over one third was not known to the victims. Most common assailant for women was their spouse (40%) followed by in-laws (14%) and neighbours (12%). Men were most commonly attacked by unspecified known individuals (18%) followed by neighbours (11%) and friends (9%). This difference was

**Table 3**  
Types of weapon used for physical assault.

Weapon	Male		Female		Total	
	No.	%	No.	%	No.	%
Fists and kicks	67	19.48	22	25.00	89	20.60
Stones	62	18.02	18	20.45	80	18.52
Wooden sticks and clubs	66	19.19	27	30.68	93	21.53
Iron rods and metals	33	9.59	8	9.09	41	9.49
Glasses and bottles	15	4.36	2	2.27	17	3.94
Sharp edged weapons	61	17.73	1	1.14	62	14.35
Firearms	29	8.43	6	6.82	35	8.10
Others	11	3.20	4	4.55	15	3.47
Total	344	100.00	88	100.00	432	100.00

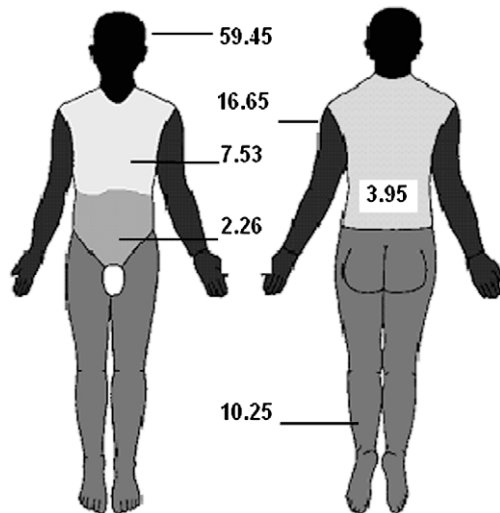


Fig. 1. Anatomical sites involved/injured (%) – male.

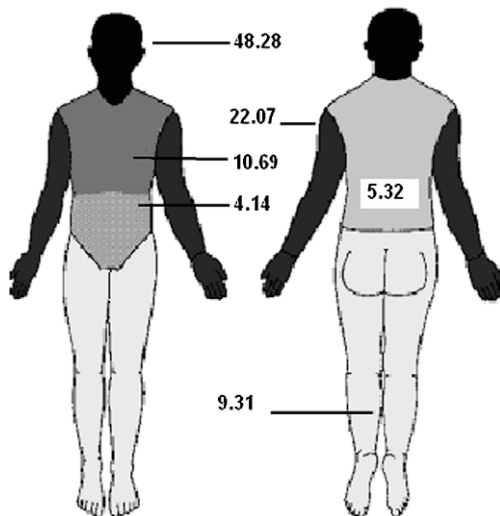


Fig. 2. Anatomical sites involved/injured (%) – female.

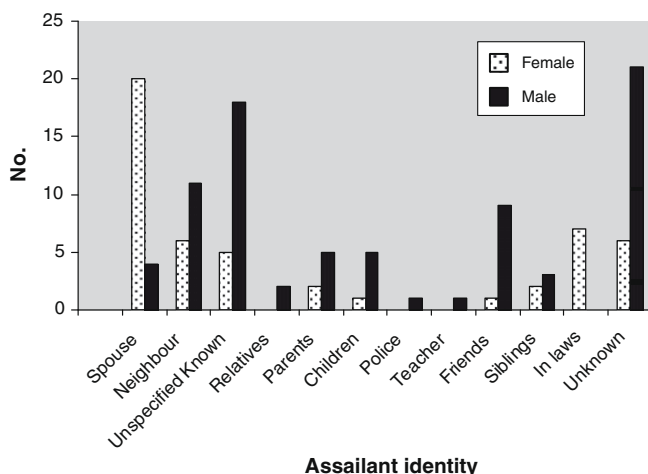


Fig. 3. Identity of assailants.

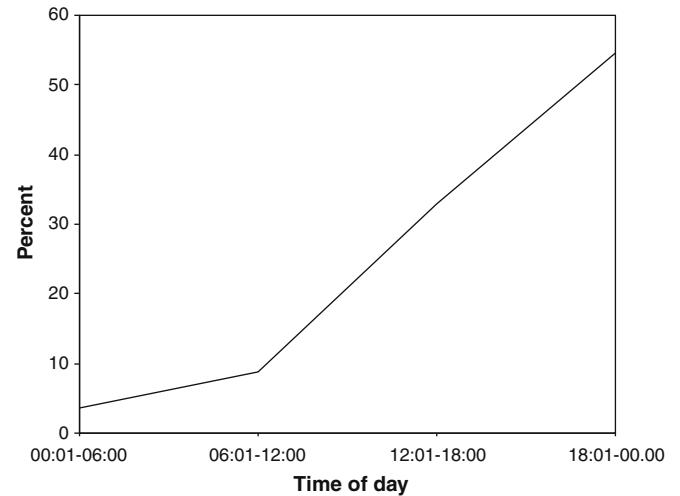


Fig. 4. Time distribution of cases.

significant between assailants in males and females ( $P < 0.001$ ) (Fig. 3).

The contributing factors for physical assaults were recorded for only 61 cases and among them, 91.8% had alcohol as the contributory factor, two had brawls and one had drug abuse.

Seasonal distribution of the cases showed slight variation with 31% cases occurring in summer, 28% cases in autumn and rest equally distributed between the winter and spring seasons at 20.5%. However, peak was in summer months of May and June and cases declined from November and continued to be low till spring.

Fig. 4 shows the distribution of cases according to the time of the day. The number of cases increased as the day advanced from midnight to morning, afternoon and late evening. Maximum (59.59%) cases occurred in the last quarter of the day alone followed by third quarter between 12 noon and 6:30 in the evening (32.97%). Least number of cases occurred in the early hours of morning.

#### 4. Discussion

WHO report of 2002 on violence states that interpersonal violence leads to premature mortality and 90% of this mortality occurs in the low and middle income countries.<sup>1</sup> It also states that most violence result in non-fatal injuries. Until recently this aspect was dealt with only through the criminal justice system. With the launch of the WHO report on violence, there is growing recognition of the necessity to have surveillance system in place as the first step in the effort to control violence and its consequences. Some countries in Africa and Asia have already started the prevention programmes.<sup>2</sup>

In the present study, number of cases reporting in the 3 years was almost same pointing towards immediate requirements for control and prevention of burden of violence related health events in the community. Our study shows that such intervention programmes should concentrate more among males as they constitute majority of cases reported in the Emergency Department of the hospital. This is consistent with the observations in other studies, where percentage of male involvement ranged from 75.8% to 86%.<sup>5–9</sup> This could be due to the inherent nature of males who are more aggressive and more inclined towards violent behaviour, presence of aggravating factors like use of alcohol and drugs and the fact that they are outdoors and are more at risk. Lower reporting rate on the part of female physical assault victims when it is a

case of spouse/partner involvement could be another reason for low female representation. It has been seen that even women in developed countries do not report intimate partner violence as often with a study in UK revealing that only 22% of women had revealed to the police, although higher percentage had told their friends and family. That figure was as low as 1% in Cambodia and 6% in the Republic of Moldova.<sup>1</sup> Nepal, with its cultural, religious and legal system that gives authority and dominance to men in a relationship will have more number of unreported cases especially since it has been found to be a widespread problem.<sup>10</sup>

The median age of the physical assault victims was 29 years and it was observed that the median age of female victims was significantly higher than that of males. This reflects that more young males are engaged in violence than females in which majority of violence is from their spouse or partner. The median ages for males and females observed in our study are higher than that reported by Shephard et al. in Bristol where median age for both genders was 23 years.<sup>11</sup> One reason for this age disparity could be that our cases are from the medico-legal register at the Emergency Department and their cases came from Accident and Emergency (A&E) registers irrespective of whether it was reported to the police or not. Older individuals may be more likely to report to the police and youngsters may like to resolve among themselves. But the possibility of older age groups being involved in Nepal cannot be ruled out as the Bristol study is from a developed country with different socio-economic milieu and our physical assault victims may be older than theirs due to some yet uninvestigated causes. Regarding the age groups involved, most commonly involved age group was 16–25 years followed by 26–35 years. Other studies have shown similar trend of increased involvement of younger age group of 20–24 years.<sup>5,11</sup> In our study, almost 80% of the cases occurred in the group of 16–45 years, the most productive age group. This gives an indication about the socio-economic implication on the family and society, more so in Nepal because the middle age groups are involved and they are more likely to be the bread winners for the family. Injuries result in both direct and indirect costs to the victims and the country. Countries like United States and United Kingdom have calculated the cost for them amounting to billions of dollars equivalent to 0.5–1% of GDP.<sup>12</sup> This kind of evaluation is yet to be done in a developing country like Nepal but its impact in terms of relative cost may not be very different.

The most common type of injuries sustained by the victims of physical assault in both sexes was contusion followed by incised wounds, lacerations and abrasions. Lacerations and stab injury were more common in males and contusions and incised wounds were more common in females. This finding is similar to those reported by Brink et al. in 1998 where laceration was related to male victims more and contusions to females.<sup>7</sup> Hocking also found open wounds and contusions to be the most common type of injuries.<sup>5</sup> Other gender differences were seen for gunshot wounds and stab injuries that were more common in males. Stab injuries due to sharp weapons were caused in only 1.4% of our study group whereas it was more common in other studies ranging from 6% reported by Shepherd et al. to 23% by Wright and Kariya.<sup>13,14</sup> This difference could be attributed to the nature of events that lead to injuries and weapons available at hand. The difference in proportion of gunshot wounds can also be attributed to it, as in our study only 2.5% had gunshot wounds compared to 7.3% in Jamaica.<sup>15</sup> Seven of the victims were brought dead to the hospital and three more died after reaching the hospital. Nine out of 10 who died were males. Further five were critically injured and unstable. Since there was no follow up of the cases, one cannot comment on the actual mortality rate among the victims reporting to the Emergency Department. The mortality of 10 per 1100 cases reported in the Emergency Department seems high when compared with the Danish study where only 5 out of 2432 patients died.<sup>7</sup>

Records of type of weapon used on the victims showed that in 20.6% of cases no weapon was used and they were assaulted with fists and kicks by the perpetrator. This is unlike the observations made in the Danish and London studies where the proportion of injuries caused by body parts like kicks and punches and head butts were far more common at 64.2% and 63% respectively.<sup>5,7</sup> A study by Shepherd et al. and another done in London also showed maximum physical assault injuries to be caused by punching and kicking.<sup>9,13</sup> The commonest weapon used in our study was wooden sticks followed by stones and sharp edged weapons. Wood was used in more than one-fifth of our victims whereas it does not feature in the studies done by Brink et al. and Shepherd et al.<sup>7,11</sup> It may be due to easy availability of wood in this community where it is still the principal fuel used for cooking and depicts the rural setting from where most of the victims come. Interestingly, traditional sticks were used in 55% of cases in a study in Basotho.<sup>16</sup> Gender difference in the weapon used upon the victims was most marked in the sharp edged weapons which was used 17.73% of the times in males and only 1.14% times in women and lesser difference was observed for firearms, broken glass and bottles that were also more commonly used upon men.

The number of injuries sustained by physical assault victims showed that one third each of the victims sustained single, two or three and more injuries. The proportion of victims sustaining single injury was higher in the Danish study with 55% and at two sites was lower at 26%. Three or more sites involvement in our study was higher at 31.9% compared to 19% in the Danish study.<sup>7</sup> More than half of the total injuries were sustained in the head and neck region followed by the upper limbs and the lower limbs. This finding is similar to findings made by other studies that also found most common injury site to be the head and neck in all victims and next was upper limbs.<sup>7,9,14,15</sup> The proportion of the head and neck injury in other studies was higher ranging from 60% in the Scottish study to 78% for males in the study by Brink et al.<sup>7</sup> Upper limbs involvement seen by Brink et al. was slightly lower at 14% compared to our study of 17.74%. The involvement of different anatomical sites may reflect the nature of attack, intention and defense put up by the victims especially for the upper limb injuries.

Majority of the cases did not have the identity of the assailant recorded. Of the 153 cases that had, one third did not know their attacker. Most common assailants specified were spouses followed by neighbours, friends, in-laws, parents and children. Among the known assailants, males were assaulted more by neighbours and friends and females by spouses and in-laws. Relatives were implicated in one third of the physical assaults, ranging from parents to in-laws. Physical assault by family in our study is much higher than that reported by Hocking in London where only 15% of the physical assaults were attributed to family members.<sup>5</sup> Proportion of females attacked by spouses is concurring with other studies where females faced physical assault by spouses more frequently.<sup>8,16,17</sup> This highlights the importance of intimate partner violence in women, which is existing in all countries and have complex socio-cultural determinants. A 4 year study in India on female homicide revealed that 51% of them had been killed by their spouse.<sup>18</sup> Situation of women in India and Nepal is very similar and spousal abuse should be considered on differential diagnosis of a woman who comes with suspicious and repeated injuries at the Emergency Department. Though total number of assailants recorded is low, the proportional difference in assailant identity among both genders gives an insight to the type of violence faced by men and women.

Among the external factors that contributed to the occurrence of violence, only 61 cases had any record of contributing factors and of them more than 90% had alcohol consumption either by the victim or the perpetrator. Similar observations were made by Shepherd et al. and Wright and Kariya, where they found that



73% and 69% of the victims had consumed alcohol prior to the assault respectively.<sup>11,14</sup> Another study in South London found the proportion to be 50%.<sup>5</sup> Alcohol has been known to induce violent behaviour and is frequently associated with it. Its use also increases the chance of multiple injuries.<sup>1</sup> Lower recording of external factors including alcohol cannot be accepted as the actual low prevalence of alcohol consumption among these populations as there may be various reasons for non-recording like pressure from the assailants and relatives as well as the victims when they are the ones indulging in those practices.

Seasonal difference in occurrence of cases though small, showed more cases in summer and autumn months as compared to spring and winter months. This is partially in congruence with the observations made in other studies conducted in Turkey and Britain that also found cases occurred more in summer months. Regarding occurrence in winter months, the London study showed a December peak which was not observed by other studies including ours.<sup>6,19</sup> This could be due to various environmental and social factors that influence violent behaviour. Summer and autumn months have longer days leading to more number of hours spent outdoors whereas the winter peak in London may coincide with the holiday season with its share of drunkenness and outdoor gatherings. Variation of cases according to time of the day showed that more than 90% of the physical assaults occurred in the third and fourth quarters of the day and maximum occurred between the time periods of six in the evening to midnight. This has been observed in other studies by Balci et al., Shepherd et al., Butchart and Brown all of which showed that most of the cases occurred in the third and fourth quarters of the day, though the variation was not as wide as in our study.<sup>6,11,17</sup> This variation could be due to the fact that as the day advances people group together more at home and at public places increasing the chances of conflict. It also reflects a trend in Nepal where people consume alcohol in the evening after they come back from work which becomes the contributing factor for events that lead to physical assault. This knowledge along with monthly variation can be used to plan for optimum utilization of scarce resources in a developing country like Nepal focusing the prevention efforts more at the highest risk periods.

The age and gender distribution puts into perspective the dynamics involved in occurrence of injuries and the demographic group to concentrate on for prevention efforts. Types of injuries coming to the Emergency Department, weapons used and extent of injuries and other factors would be useful in raising awareness among and retraining doctors to deal with violence injuries and improve preparedness of the hospitals. There is a need to conduct further research on violence in Nepal especially population based studies of physical assault and other types of violence. Such studies should help in calculating the violence rates in the population and provide further evidence on epidemiological factors associated with it.

Our study is hospital based and its limitations are that one cannot calculate the population rates of physical assault injuries in the region. We have taken data only from the Regional Hospital run by the government. Though it is the biggest hospital where maximum number of cases report, one would get a more complete scenario if data were taken from other small hospitals in the city. One of the biggest drawbacks was that data entry in the registers maintained by the Emergency Department were lacking in many aspects, there were many information missing from various cases like assailants, any psychiatric morbidity among the victims, weapons, contributing factors, etc. Since we took information from the medico-legal register, one may not have a full perspective of community and family violence in the area. This is a common deficiency in studies done in Nepal.<sup>20</sup> Studies have shown that many cases of violence do not get reported to the police and they are missed from the sur-

veillance system even though they seek treatment at the Emergency Department even in developed countries.<sup>5,11</sup> Emergency Department data also do not include cases of minor injuries that are not deemed to need hospital treatment. Nepal needs to have a systematic surveillance network in place and have multiple sources of data that would give a clear understanding of the problem of violence related injuries and aid in subsequent control programmes.

## 5. Conclusion

Physical assault was more common in young males with a wide range in age. Contusions and incised wounds were the most common types of injury and majority of injuries were inflicted by kicks and punches followed by wooden sticks. Victims sustained injury at the head and neck site and upper limbs the most. Gender difference was observed with men having stab injuries more and thorax and abdominal regions being involved more in females. Males were more likely to end up with fatal wounds. Most common assailant in men was friends and neighbours and in females it was spouses followed by in-laws. Cases occurred mostly in summer months and third and fourth quarters of the day. Occurrence of physical assault in Nepal follows the pattern seen in other parts of the world with local and socio-cultural differences that need to be further delved into and considered during the planning and implementation of injury prevention programmes.

## Conflict of Interest

None declared.

## Funding

No funding for the research.

## Ethical Approval

Ethical approval is not applicable.

## Acknowledgments

Authors are thankful for the help extended by Dr. Padma Bahadur Chand, Western Regional Health Director, Medical Superintendent of Western Regional Hospital (WRH), staff of Medical Records Section of WRH and Dr. S.K. Dham, Dean, Manipal College of Medical Sciences, Nepal.

## References

1. World report on violence and health. Geneva: World Health Organization; 2002.
2. Third milestones of a global campaign for violence prevention report 2007. Department of Injuries and Violence Prevention. Non-communicable Diseases and Mental Health. World Health Organization.
3. Rosenberg ML, Butchart A, Mercy J. Disease control priorities in developing countries. The International Bank for Reconstruction and Development/The World Bank; 2006.
4. Population monograph, Nepal. 2006 R Statistical pocket book, Nepal, 2004. His Majesty's Government, National Planning Commission Secretariat, Central Bureau of Statistics, Ramshah Path, Thapathali, Kathmandu, Nepal.
5. Hocking MA. Assaults in south east London. *J R Soc Med* 1989;**82**:281–4.
6. Balci YG, Vaizoglu SA, Guler C. Evaluation of non-fatal injuries with relation to where assaults occur. *Turk J Med Sci* 2001;**31**:345–54.
7. Brink O, Vesterby A, Jensen J. Pattern of injuries due to interpersonal violence. *Injury* 1998;**29**:705–9.
8. Hayen A, Mitchell R. A description of interpersonal violence-related hospitalisations in New South Wales. *NSW Public Health Bull* 2005;**17**:8–12.
9. Payne-James JJ, Dean PJ. Assault and injury in clinical forensic medical practice. *Med Sci Law* 1994;**34**:202–6.
10. Domestic violence in Nepal. Minnesota Advocates for Human Rights; 1998.

11. Shepherd J, Scully C, Shapland M, Irish M, Leslie IJ. Assault: characteristics of victims attending an inner-city hospital. *Injury* 1988;**19**:185–90.
12. The economic dimensions of inter-personal violence. Department of Injuries and Violence Prevention. World Health Organization; 2004.
13. Shepherd JP, Shapland M, Pearce NX, Scully C. Pattern, severity and aetiology of injuries in victims of assault. *J R Soc Med* 1990;**83**:75–8.
14. Wright J, Kariya A. Assault patients attending a Scottish accident and emergency department. *J R Soc Med* 1997;**90**:322–6.
15. Zohoori N, Ward E, Gordon G, et al. Non-fatal violence-related injuries in Kingston, Jamaica: a preventable drain on resources. *Injury Control Saf Promot*. 2002;**9**:255–62.
16. Van Geldermalsen AA, Van der Stuyft P. Interpersonal violence: patterns in a Basotho community. *J Trop Med Hyg* 1993;**96**:93–9.
17. Butchart A, Brown DS. Non-fatal injuries due to interpersonal violence in Johannesburg–Soweto: incidence, determinants and consequences. *Forensic Sci Int* 1991;**52**:35–51.
18. Mohanty MK, Panigrahi MK, Mohanty S, Das SK. Victimologic study of female homicide. *Leg Med (Tokyo)* 2004;**6**:151–6.
19. Shepherd JP, Ali MA, Hughes AO, Levers BGH. Trends in urban violence: a comparison of accident department and police records. *J R Soc Med* 1993;**87**:87–8.
20. Subba SH, Binu VS, Menezes RG, Kanchan T, Arun M, Patil R, et al. Pattern and trend of deliberate self-harm in Western Nepal. *J Forensic Sci* 2009;**4**(3):704–7.